

Application No.: 09/807298
Docket No.: PE0612 US PCT

Page 9

triflate dissolved in cyclohexanone
which was filtered through a 0.45 μ PTFE syringe filter. 2.70

IN THE CLAIMS:

Please amend the claims as follows:

1. A positive-working photoresist comprising:

(A) a branched polymer containing protected acid groups, said polymer comprising one or more branch segment(s) chemically linked along a linear backbone segment, wherein the branch segment(s) contain at least two repeating monomer units and have a number average molecular weight (M_n) of at least 1000; and

(B) at least one photoacid generator.

13. The photoresist of Claim 1 wherein

- (a) the ethylenically unsaturated macromer component has a number average molecular weight (M_n) in the range of 1000 to 15,000;
- (b) the linear backbone segment has a number average molecular weight (M_n) between about 2,000 and about 500,000; and
- (c) the weight ratio of the linear backbone segment to the branch segment(s) is within a range of about 50/1 to about 1/10.

16. (Once Amended) The photoresist of Claim 1 wherein the branched polymer is an acrylic/methacrylic/styrenic copolymer being at least 60% by weight acrylate and having at least 60% of methacrylate repeat unit content present in the copolymer in a first location, the first location being one of the segments, the second location being a segment different from the first location, wherein at least 60% of the acrylate repeat unit content in the copolymer is present in the second location.

17. The photoresist of Claim 1 wherein the branched polymer is a fluorine-containing copolymer comprising a repeat unit derived from at least one ethylenically unsaturated compound containing at least one fluorine atom covalently attached to an ethylenically unsaturated carbon atom.

27. A process for preparing a photoresist image on a substrate comprising, in order:

(W) applying a photoresist composition on a substrate, wherein the photoresist composition comprises:

Application No.: 09/807298
Docket No.: PE0612 US PCT

Page 10

(a) a branched polymer containing protected acid groups, said polymer comprising one or more branch segment(s) chemically linked along a linear backbone segment, wherein the branched polymer contains sufficient functionality to render the photoresist developable to afford a relief image, upon imagewise exposure to radiation selected from the group consisting of ultraviolet and violet and subsequent heating, wherein the branch segment(s) contain at least two repeating monomer units and have a number average molecular weight (M_n) of at least 1000;

(b) at least one photoacid generator; and

(c) a solvent;

(X) drying the coated photoresist composition to remove solvent and thereby to form a photoresist layer on the substrate;

(Y) imagewise exposing the photoresist layer to form imaged and non-imaged areas; and

(Z) developing the exposed photoresist layer having imaged and non-imaged areas to form the relief image on the substrate.

34. (NEW) The photoresist of Claim 1 wherein the branched polymer is an acrylic/methacrylic copolymer being at least 60% by weight acrylate and having at least 60% of methacrylate repeat unit present in a first location, the first location being one of the segments, the second location being a segment different from the first location, wherein at least 60% of the acrylate repeat unit content in the copolymer is present in the second location.

REMARKS

This response is being submitted together with:

(1) A petition and fee for three months extension of time for response.

(2) Copies of correspondence with the International Preliminary Examining Authority of the Patent Cooperation Treaty in the PCT application corresponding to the instant application. The correspondence is a copy of a 1 December 2000 "Reply to Written Opinion" and a 19 January 2001 "Notification of Transmittal of the International Preliminary Examination Report". (hereinafter "Exhibit")

(3) A supplemental information disclosure statement and PTO Form 1449 including citations to references cited in a communication from a foreign patent office in a counterpart foreign application. In the supplemental IDS, certain Japanese patent publications are cited. English Abstracts of each cited Japanese publication are